Is Antibiotics Needed for Endoscopic Endonasal Transphenoidal Surgery for Pituitary Tumors: A Well Design Systematic Review and Meta- Analysis

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Introduction

The benefit of prophylactic antibiotic use in endoscopic endonasal transsphenoidal surgery for pituitary lesions is controversial. Many surgeons administer antibiotics perioperatively not based on clear guidelines but "to be safe". Also there is no clear evidence on what is the right antibiotic. Our goal was to to determine if the antibiotic prophylaxis use reduces the risk of infection (e.g., meningitis, sinusitis) within 30 days after the surgery, in adult patients with pituitary lesions undergoing EETS.

Methods

A systematic review using PRISMA guidelines was performed to assess the efficacy of perioperative antibiotic use to prevent infectious complications in patients undergoing EETS.

Inclusion criteria: randomized controlled trials including two or more groups comparing antibiotic-placebo or antibiotic-antibiotic use perioperatively for EETS, systematic reviews with/without meta-analysis, observational studies, and case series of prophylactic antibiotic perioperative use for EETS.

The following data were extracted from each study included into the systematic review: study design, year of publication, sample size, surgery type, perioperative antibacterial treatment (antibiotic, dose, duration), number of patients with 30-days post-operative meningitis and/or sinusitis. End points: rates of meningitis and sinusitis as infectious complications

Results

A total of 280 articles were identified by the initial search. Four studies met the inclusion criteria: three retrospective descriptive cohort studies and one prospective case series study. Based on GRADE score these studies were considered low in quality.

Total of 633 patients were included in our analysis. The study participants received different antibiotic regimens perioperatively. The most common used antibiotics were cefazolin and ceftazidime.

The rate of infection ranged from 0.5% to 3.1 % with meningitis as the most common infection.

Conclusions

The need to use antibiotic(s) perioperatively is still not clear in patients with pituitary lesions undergoing EETS, however our study showed that cefazolin might be the right antibiotic.

Learning Objectives

To evaluate the need for prophylactic antibiotics in pituitary surgery.

References

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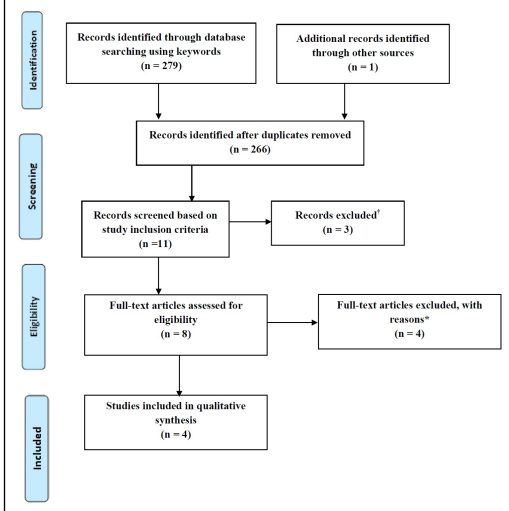
Figure 1. PRISMA 2009 Flow Diagram – shows the study search and inclusion results



† Records excluded: 2 studies identified as surveys and one systematic review irrelevant for our study review; *Reasons: other types of operative procedures performed on pituitary lesions; no documentation on type of antibiotic or antibiotic dose used; no documentation on number of patients undergoing ETSS per study group